

REMARKS

I. Status of Claims

Upon entry of the Amendment, which is respectfully requested, claims 2 and 4-12 will be pending in the present application. Claim 11 was withdrawn from consideration in Response to a Restriction Requirement filed on May 30, 2008. Claims 2 and 4-10 are rejected.

Claim 3 is canceled without prejudice or disclaimer.

Claim 12 is added. Support for claim 12 can be found at least at paragraph [0029] at page 10 of the present specification.

No new matter is added.

Entry of the Amendment is respectfully requested.

II. Submission of Priority Document

A verified English translation of the priority document, JP 2003-148261, dated May 26, 2003, to which the present application claims priority under 35 U.S.C. § 119, is being submitted herewith.

The Examiner is kindly requested to acknowledge receipt of the same.

Applicants note that the effective U.S. filing date of the present application is May 26, 2004, the filing date of the PCT Application. Furthermore, the present application claims priority to JP 2003-148261, filed May 26, 2003, and a certified translation of the '261 application is filed herewith to perfect priority.

Kitao (2004/0110064) has a publication date of June 10, 2004, and a U.S. filing date of August 20, 2003. Therefore, Kitao is only a reference under § 102(e). Kitao I (CN 1484363) was published on March 24, 2004.

Therefore, Applicants submit that by perfecting priority, the Kitao references are removed as prior art against the present application.

III. Response to Rejection under 35 U.S.C. § 112

Claims 2 and 4-10 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly lacking sufficient support in the present specification. Specifically, the Examiner states that the present specification, while being enabling for $\text{Li}_{1+x}\text{Mn}_{2-x}\text{O}_4$, does not provide sufficient support for “a compound in which some of Mn or O sites are replaced with another element”.

Applicants respectfully traverse, at least for the following reason.

Applicants submit that at page 16, lines 10-13, it is clearly recited that manganese may be replaced with another cation, and oxygen with another anion, depending on the priority of the targeted battery properties. Furthermore, examples of cations and anions which may replace Mn and O, respectively, are listed at page 16, lines 14-17.

In view of the above, Applicants respectfully submit that the present specification provides support for a compound in which some of Mn or O sites are replaced with another element. Therefore, Applicants respectfully request reconsideration and withdrawal of the § 112 rejection of claims 2 and 4-10

IV. Response to Rejection under 35 U.S.C. §§ 102/103

Claims 2 and 4-10 are rejected under 35 U.S.C. § 102(a) as allegedly anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over Kitao et al. (CN 1484363, Kitao I). The Examiner has relied on the corresponding U.S. Patent Application Publication No. 2004/0110064 (Kitao) in making his rejection.

Applicants submit the following discussion.

Kitao discloses a positive electrode comprising: $\text{LiNi}_{0.4}\text{Co}_{0.3}\text{O}_2$ and $\text{Li}_{1.115}\text{Mn}_{1.85}\text{O}_4$.

It is the Examiner's position that Kitao teaches or suggests the presently claimed invention, at least because:

a) the battery of Kitao comprises a positive electrode having the same active material comprising lithium manganese composite oxide of the present invention, a negative electrode and an electrolyte, and therefore a mixture of an electrolyte salt and a carbonate solvent of 1000 ppm or less must be inherent, and

b) the presently claimed property that a Mn elution amount when immersing the particles in a mixture of an electrolyte salt and carbonate solvent is 1000 ppm or less would have obviously been present once the Kitao product is provided.

Applicants respectfully disagree, at least because the Mn elution amount does not depend on the constituent element but depends on the manufacturing condition of lithium manganate.

For example, the Li source material having a particle size D_{50} of 2 μm or less can be selected and used. Using the Li source with D_{50} of not less than 2 can improve reactivity with the Mn source, and can improve crystallinity of a lithium manganate prepared. See paragraph [0061] at page 20 of the present specification.

Additionally, the Mn elution amount of a lithium manganate prepared by the Li particle size D_{50} 2 μm is less than by the Li particle size D_{50} 10 μm . See paragraph [0080] at page 27 and working Examples A-3 and A-5 shown in Tables 1 and 2 of the present specification. Therefore it would not be obvious to those skilled in the art to obtain a battery which contains a Mn elution amount when immersing the particles in a mixture of an electrolyte salt and a carbonate solvent is 1000 ppm or less, based on the teachings of Kitao.

The Examiner further asserts that Kitao discloses that the positive active material has a BET specific surface area in the range of 0.2 to 10 m^2/g . Applicants respectfully disagree, at

least because claim 2 recites a BET specific surface area which is distinctly different from the BET specific surface area described in Kitao. Kitao teaches a random value for BET specific surface area, but does not teach a relation between BET specific surface area and Mn elution amount. In contrast, the “BET method is $0.3 \text{ m}^2/\text{g}$ to $0.8 \text{ m}^2/\text{g}$,” as recited in claim 2 is determined only after the Mn elution of the present invention is determined.

In view of the above, Applicants respectfully submit that claim 2 is neither anticipated nor obvious in view of Kitao. Claims 4-12 are also patentable over Kitao, at least by virtue of their dependence from claim 2. Therefore, reconsideration and withdrawal of the §§ 102/103 rejection based on Kitao, is respectfully requested.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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CUSTOMER NUMBER

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